



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/394,514	09/13/1999	TAKAO OGAWA	0102/0074	4339

21395 7590 01/28/2004  
LOUIS WOO  
LAW OFFICE OF LOUIS WOO  
717 NORTH FAYETTE STREET  
ALEXANDRIA, VA 22314

EXAMINER

COLON, CATHERINE M

ART UNIT	PAPER NUMBER
----------	--------------

3623

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/394,514

Applicant(s)

OGAWA ET AL.

Examiner

C. Michelle Colon

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The following is a Final Office Action in response to the communication received on November 18, 2003. Claims 8-10 have been added. Claims 1-10 are now pending in this application.

#### ***Response to Amendment***

2. The addition of claims 8-10 is acknowledged. No amendments have been made to claims 1-7.

#### ***Response to Arguments***

3. Applicant's arguments have been fully considered, but found unpersuasive. In the remarks, Applicant argues that Tsuda fails to disclose the functional connection between the "fourth means" and the "vehicle sensor" as per claim 1 in that there is no usage of the detection of the presence of a vehicle with the determination of whether or not a response signal is received in response to a signal output from an antenna for determining whether a vehicle is an ETC vehicle or a non-ETC vehicle.

In response to the argument, Examiner respectfully disagrees. In col. 4, lines 20-31, Tsuda discloses a vehicle sensor for detecting that a vehicle has entered the toll collection area. In col. 4, lines 39-50, Tsuda discloses a sector beam antenna for detecting radio waves emanating from inside the toll collection area. The vehicle sensor and the antenna are functionally connected in that the antenna starts operating (i.e., sending and receiving radio signals) when the vehicle sensor detects that a vehicle has

Art Unit: 3623

entered the toll collection area. Tsuda further discloses in col. 2, lines 17-20, that while a vehicle is detected and there is no information exchange by radio, it may be assumed that the vehicle is a non-ETC vehicle. Thus, the "fourth means" of claim 1 is anticipated since the antenna sends and receives signals only when the vehicle sensor detects a vehicle and the antenna only receives signals when the detected vehicle sends its response signal to the antenna and is, therefore, an ETC vehicle (see Figure 4 and col. 5, lines 59-64). Accordingly, Examiner respectfully submits that Tsuda does disclose the functional connection between the fourth means and the vehicle sensor as currently recited in claim 1.

Therefore, the rejections are maintained and repeated below.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 6 and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuda (U.S. 5,933,096).

As per claim 1, Tsuda discloses an ETC (electronic toll collection) system comprising:

an antenna having a predetermined directivity for providing a limited radio-communication service zone (col. 4, lines 39-50; items 40 and 42 in Figure 3; The reference discloses antennae at the toll collection plaza having a predetermined direction of a limited radio-communication service zone.);

a vehicle sensor positioned at a location closer to oncoming vehicles than said antenna by a predetermined interval for detecting a vehicle which reaches a predetermined position in the limited radio-communication service zone (col. 4, lines 26-31; item 12 in Figure 3; The reference discloses entry sensors positioned closer to oncoming vehicles than the antennae. The sensors detect when a vehicle reaches a predetermined position in the limited radio-communication service zone.);

first means for transmitting a radio signal via the antenna (col. 4, lines 39-46; col. 5, lines 28-48; Figure 5);

second means for deciding whether or not a radio response to the radio signal is received via the antenna (col. 5, lines 11-27; Figure 4; The reference discloses a means for determining whether or not a received signal has come from an oncoming vehicle.);

third means for, in cases where the second means decides that a radio response to the radio signal is received, judging that there is an ETC vehicle incoming (col. 5, lines 5-64; Figures 4-6; The reference discloses using the radio received signal to judge that an ETC vehicle is incoming.); and

fourth means for, in cases where the vehicle sensor detects a vehicle while the second means decides that a radio response to the radio signal is not received, judging that there is a non-ETC vehicle incoming (col. 2, lines 16-19; col. 4, lines 32-38; col. 5,

lines 5-10; The reference discloses an entry sensor for detecting incoming vehicles. If there is no radio received signal, then the system detects a non-ETC vehicle incoming.).

As per claim 2, Tsuda discloses an ETC system as recited in claim 1, wherein the first means comprises means for continuously transmitting the radio signal via the antenna (col. 5, lines 28-48; The reference discloses a continuous transmission of radio signal from the antennas when the sensor detects a vehicle is present.).

As per claim 3, Tsuda discloses an ETC system as recited in claim 1, wherein the limited radio-communication service zone has a length greater than a length of a standard vehicle and smaller than twice the length of said vehicle (col. 5, lines 49-55; Figures 3 and 6).

As per claim 6, Tsuda discloses an ETC (electronic toll collection) system, comprising:

an antenna (col. 4, lines 39-50; items 40 and 42 in Figure 3; The reference discloses antennae at the toll collection plaza having a predetermined direction of a limited radio-communication service zone.);

transceiver means working cooperatively with said antenna for outputting a radio signal at a given rating level to cover a limited radio-communication service zone (col. 4, lines 39-46; col. 5, lines 28-48; Figure 5);

a vehicle sensor positioned at a location closer to oncoming vehicles than said antenna by a predetermined interval for detecting whether a vehicle has reached a predetermined position in said limited radio-communication zone (col. 4, lines 26-31; item 12 in Figure 3; The reference discloses entry sensors positioned closer to

oncoming vehicles that the antennae. The sensors detect when a vehicle reaches a predetermined position in the limited radio-communication service zone.);

said transceiver means further working cooperatively with said antenna for detecting radio response to said radio signal from each vehicle detected by said vehicle sensor within said radio-communication zone (col. 5, lines 11-27; Figure 4; The reference discloses a means for determining whether or not a received signal has come from an oncoming vehicle.); and

processor means for deciding a vehicle that has been detected by said vehicle sensor in said radio-communication zone is a non-ETC vehicle if no radio response to said radio signal is detected from said vehicle (col. 2, lines 16-19; col. 4, lines 32-38; col. 5, lines 5-10; The reference discloses an entry sensor for detecting incoming vehicles. If there is no radio received signal, then the system detects a non-ETC vehicle incoming.).

As per claim 7, Tsuda discloses an ETC system as recited in claim 6, wherein said processor means decides a vehicle that has been detected by said vehicle sensor in said radio-communication zone is an ETC vehicle if a radio response to said radio signal is detected from said vehicle (col. 5, lines 5-64; Figures 4-6; The reference discloses using the radio received signal to judge that an ETC vehicle is incoming.).

As per claim 8, Tsuda discloses an ETC system as recited in claim 1, wherein the antenna is one in number (col. 4, lines 39-50; col. 5, lines 59-64; There is one sector beam antenna for detecting radio waves emanating from inside the toll collection area.).

As per claim 9, Tsuda discloses an ETC system as recited in claim 1, wherein the antenna comprises a matrix array of antenna elements (col. 6, lines 6-10; The sector beam antenna comprises various antenna elements.).

As per claim 10, Tsuda discloses an ETC system as recited in claim 6, wherein the antenna comprises a matrix array of antenna elements (col. 6, lines 6-10; The sector beam antenna comprises various antenna elements.).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda (U.S. 5,933,096).

As per claim 4, Tsuda does not expressly disclose an ETC system as recited in claim 1, wherein the limited radio-communication service zone has a length of about 6.5m along a lane. However, Tsuda does disclose a limited radio-communication service zone of about 4m so that only one vehicle at a time passes through the radio-communication service zone to ensure that the correct vehicle is being charged the toll (col. 4, lines 55-62). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the limited radio-communication service zone be of specified dimensions because doing so ensures that the toll radio signal is



communicating with the appropriate vehicle at the appropriate location, thus providing accurate toll collection (Tsuda, col. 2, lines 46-50).

As per claim 5, Tsuda does not expressly disclose an ETC system as recited in claim 1, wherein the vehicle sensor is only one in the ETC system. However, Tsuda discloses only one "entry" sensor, which first detects the presence of an oncoming vehicle and triggers the radio signals of the antennae (col. 4, lines 28-29 and 46-48). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use only one vehicle sensor in the system because that is all that is necessary to initially detect the presence of an oncoming vehicle, thus, providing adequate means for triggering communication with the antennae.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3623

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Michelle Colon whose telephone number is 703-605-4251. The examiner can normally be reached Monday – Thursday from 8:30am to 5:30pm and every other Friday from 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz, can be reached at 703-305-9643.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Any response to this action should be mailed to:

***Commissioner of Patents and Trademarks***

***Washington D.C. 20231***


or faxed to:


703-305-7687 [Official Communications; including After Final  
communications labeled "Box AF"]

703-746-7202 [For status inquiries, draft communication, labeled  
"Proposed" or "Draft"]

Art Unit: 3623

Hand delivered responses should be brought to Crystal Park 5, 2451 Crystal Drive, Arlington, VA 7<sup>th</sup> floor receptionist.

  
cmc  
January 20, 2004

ROMAIN JEANTY  
  
Primary Examiner  
Art Unit 3623